National Aeronautics and Space Administration

ARTEMIS

PROJECT POLARIS

Tall Lunar Tower

Purpose

The Tall Lunar Tower (TLT) In-Space Assembly (ISA) team aims to **design, model, fabricate, autonomously assemble, and characterize** a TLT engineering development unit (EDU). The autonomous assembly of a tower also demonstrates a cross-cutting technology that can be applied to other lunar structures, such as blast shields, radiation shelters, and safe havens.

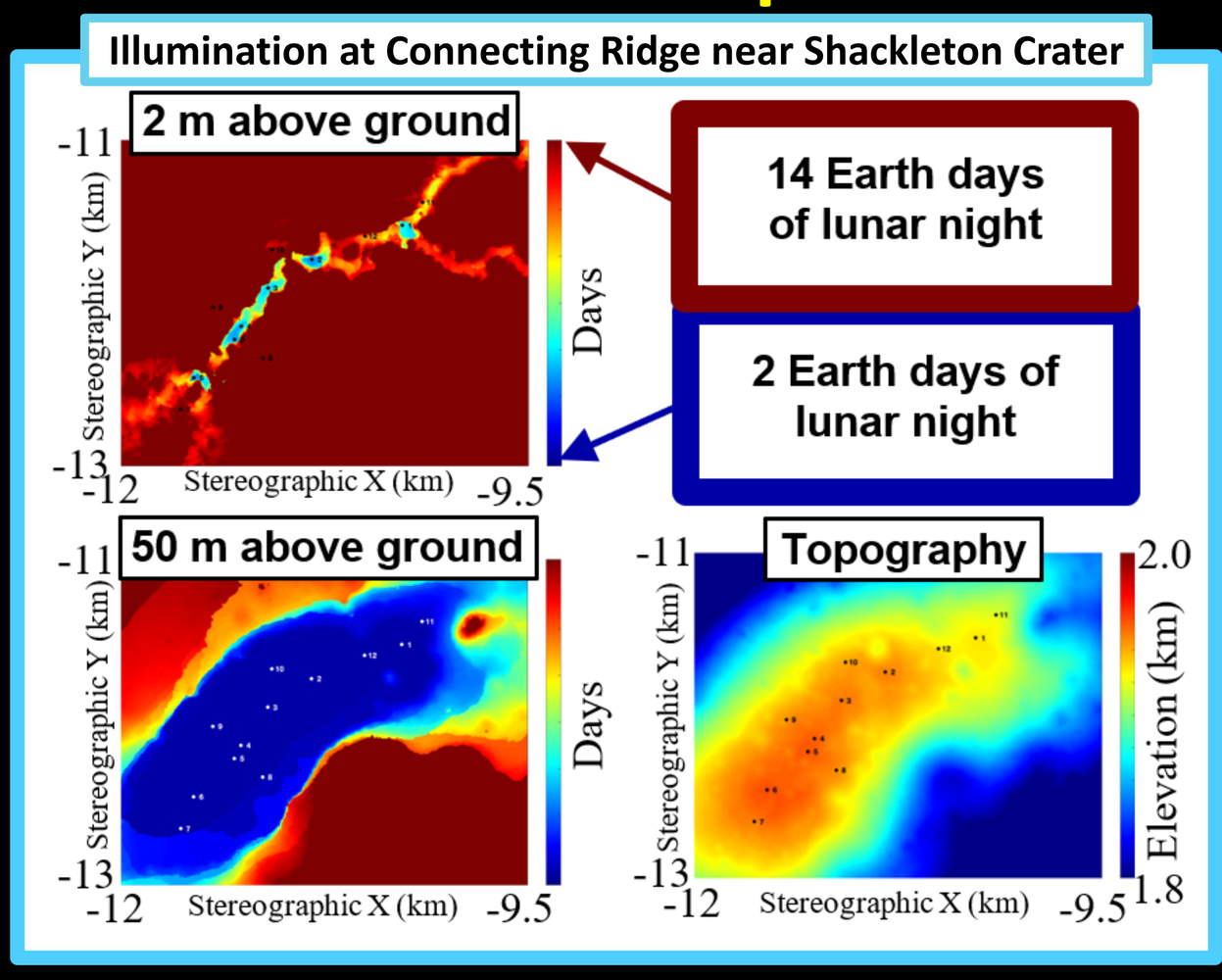
Robotic Assembly

The TLT EDU uses generic, commercial robotic manipulators with custom end effectors and a robotic jig to demonstrate the assembly of a mass-efficient lunar tower. The hardware systems allow software development to be modular, and include stereovision cameras for fine alignment.

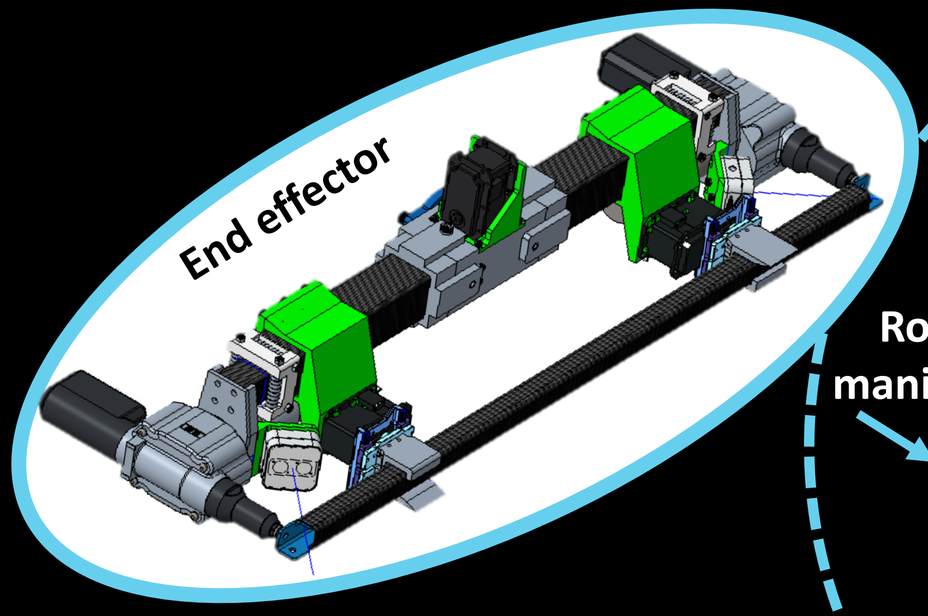
System Features

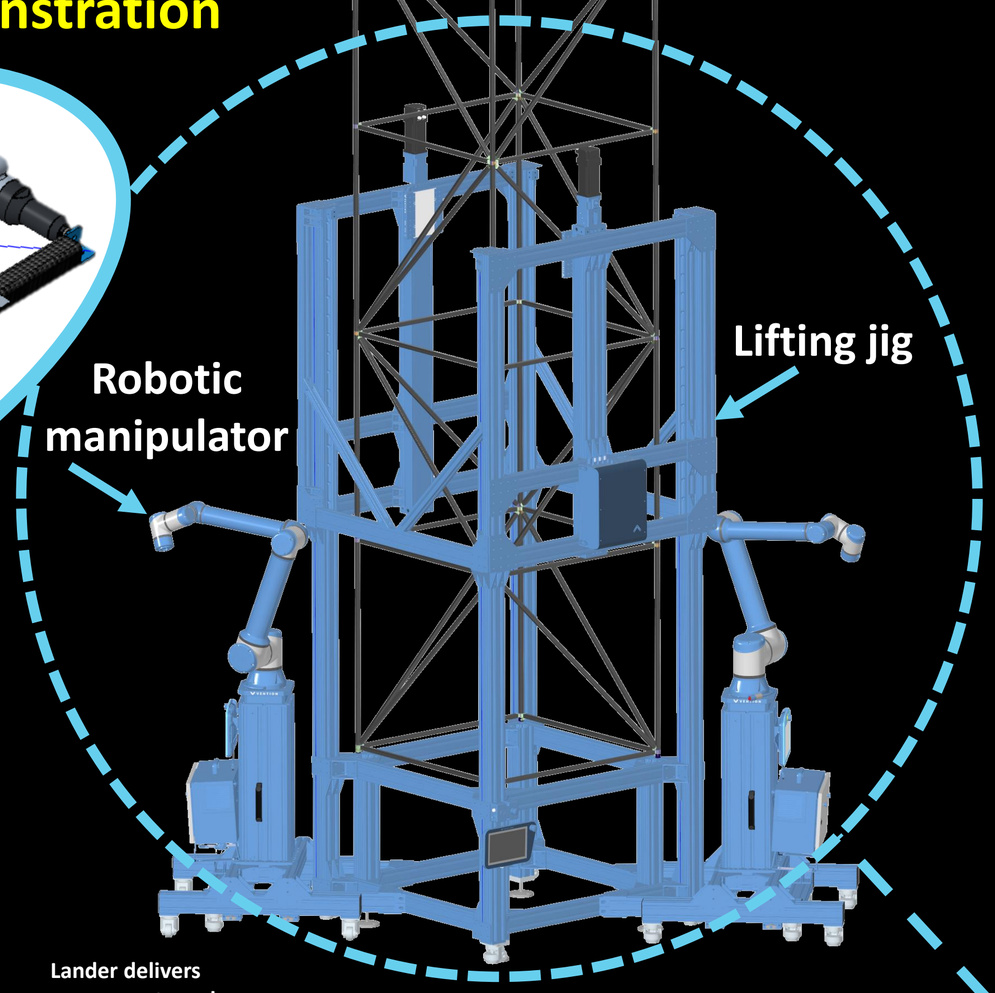
- Compact packaging for launch
- Robotic assembly with supervised autonomy
- **50-meter** or greater assembled tower height
- High payload capacity (1500 kg)
- Enables extreme surface access
- **August 2023 EDU demonstration**

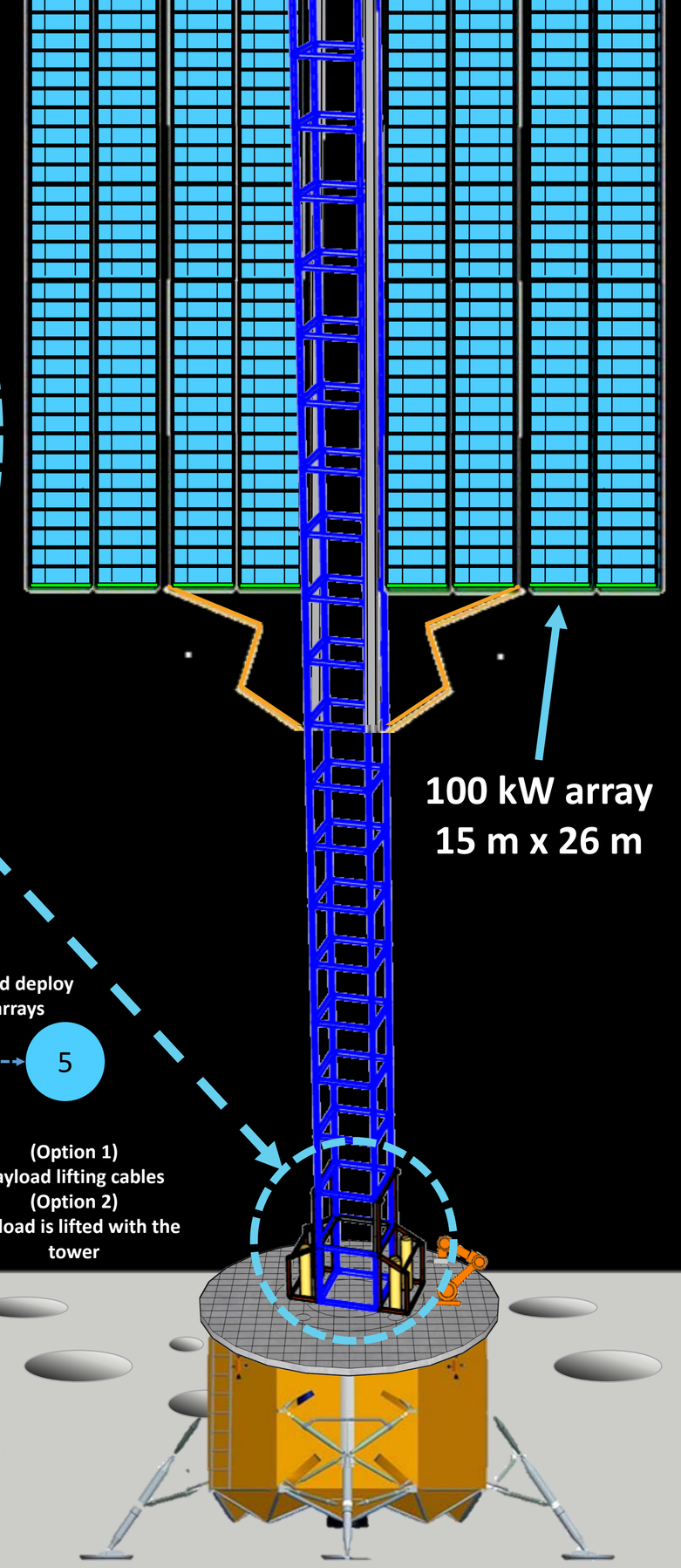
Powering exploration at the lunar south pole

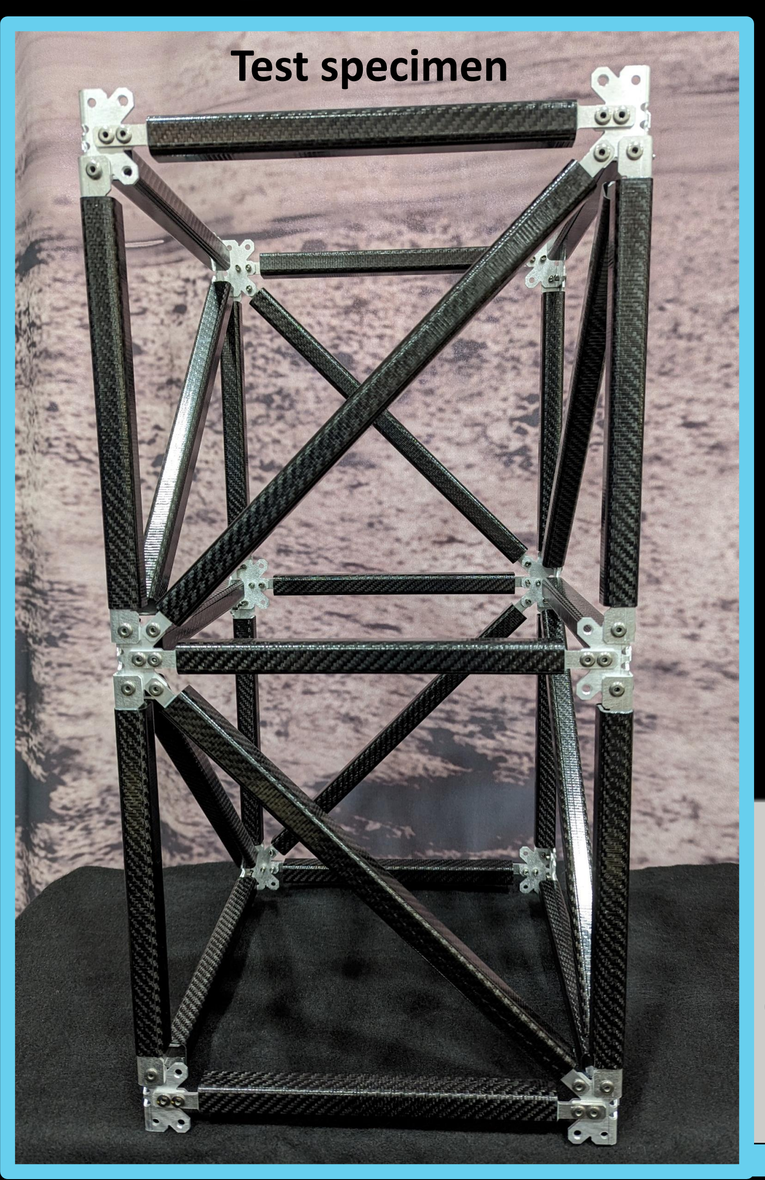


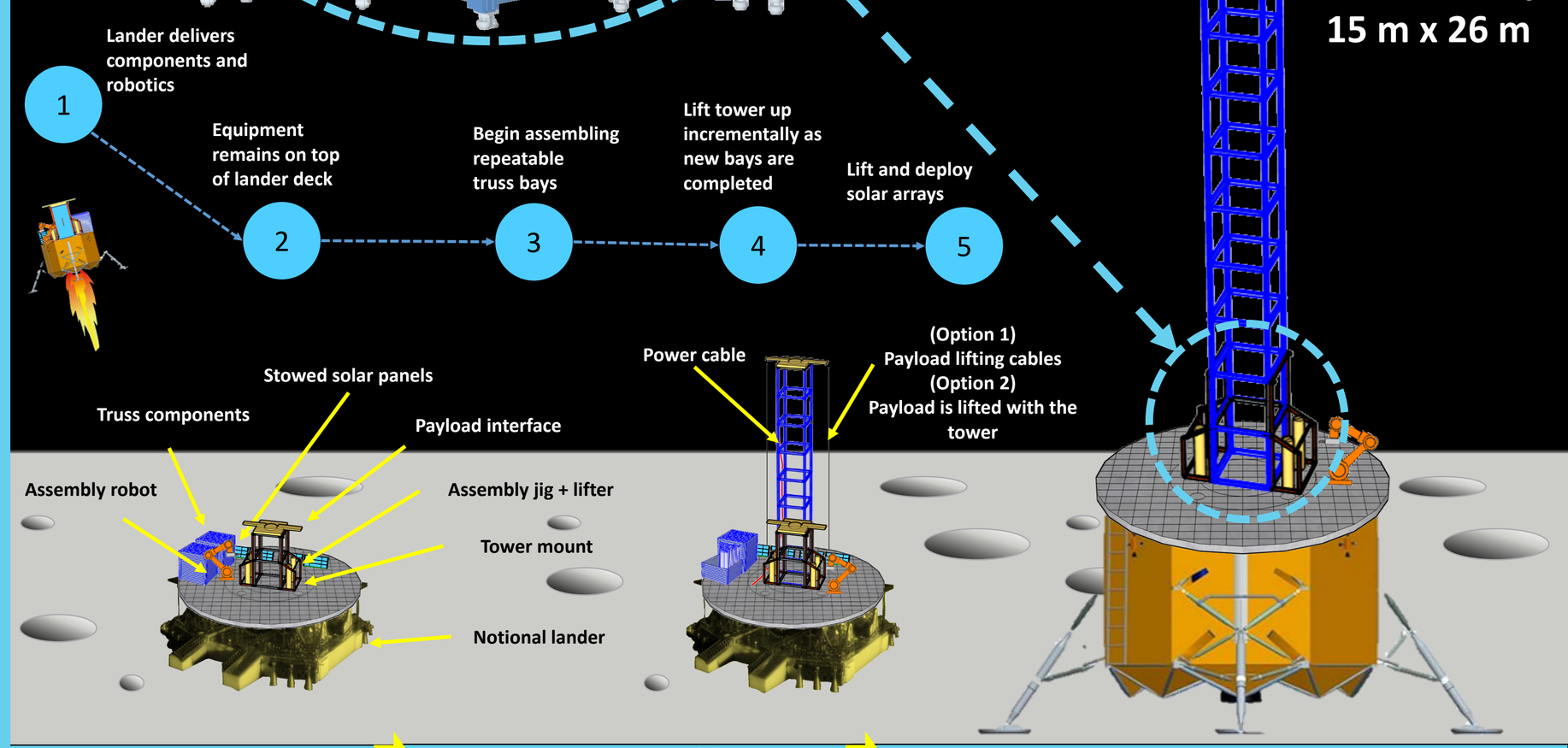
Tall Lunar Towers enable lunar construction techniques while providing consistent power generation at polar landing sites!











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